MARICOPA COUNTY DEPARTMENT OF PUBLIC HEALTH

Quarterly Epidemiologic Report

Jan – Mar 04

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Disease of the Quarter: Avian Flu

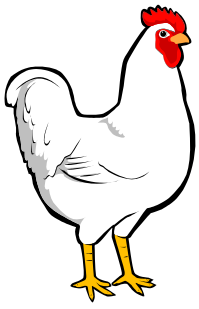
Contributed by Jennifer Stewart-Ricks with excerpts from the CDC fact sheet on Avian Influenza

Type A influenza viruses can infect several animal species, including birds, pigs, horses, seals, and whales. Influenza viruses that infect birds are called "avian influenza viruses." Birds are an especially important species because all known subtypes of influenza A viruses circulate among wild birds, which are considered the natural hosts for influenza A viruses. Avian influenza viruses do not usually directly infect humans or circulate among humans.

Influenza A viruses can be divided into subtypes on the basis of their surface proteins – hemagglutinin (HA0) and neuraminidase (NA). There are 15 known H subtypes. While all subtypes can be found in birds, only 3 subtypes of HA (H1, H2, and H3) and two subtypes of NA (N1 and N2) are known to have circulated widely in humans.

Influenza A virus subtype H5N1 is the strain implicated in the current outbreak of avian influenza. Outbreaks of the H5N1 strain in poultry have been seen in Cambodia, China, Hong Kong, Indonesia, South Korea, Laos, Thailand, and Vietnam. It has been seen in humans in Vietnam, Hong Kong, and Thailand. The first outbreak was seen in Hong Kong in 1997 where six of eighteen people contracting the virus died.

Reported human symptoms of the avian flu virus range from typical influenza-like symptoms (such as fever, cough, and sore throat) to eye infections, pneumonia, and other life threatening complications.



The genes of the current outbreak of the H5N1 strain are of bird origin. It has not acquired genes from the human influenza subtypes thus making person-to-person transmission less likely. The H5N1 subtype is of particular concern due to its documented propensity to acquire genes from species it infects. If this happens the transmission within humans would be greatly increased.

The genetic sequencing of the avian flu virus shows antiviral resistance to amantadine and rimantadine. Oseltamavir and zanamavir should still be effective against this strain of H5N1.

All influenza viruses can change. It is possible that an avian influenza virus could change so that it could infect humans and could spread easily from person to person. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population. If an avian virus were able to infect people and gain the ability to spread easily from person to person, an "influenza pandemic" could begin.

(continued on page 2)

Occasionally, outbreaks of avian influenza A occur among poultry flocks in the United States. Since early February 2004, avian influenza outbreaks have been reported in several locations in the US, most recently in Texas. The outbreak in Texas is the H5N2 strain which is a different subtype of influenza A than the virus affecting parts of Asia. There is no epidemiologic link between the H5N1 virus in Asia and the H5N2 virus in Texas. Appropriate measures were taken to contain the outbreak in poultry and minimize the risk to humans. This is the first outbreak of highly pathogenic avian influenza in the US in 20 years and was detected by routine state monitoring for avian influenza.

For more information on avian influenza:

Centers for Disease Control and Prevention: http://www.cdc.gov/flu/avian/index.htm

The Animal and Plant Health Inspection Service of the USDA:
http://www.aphis.usda.gov/lpa/issues/ai_us/ai_us.html

The Texas Animal Health Commission: http://www.tahc.state.tx.us/

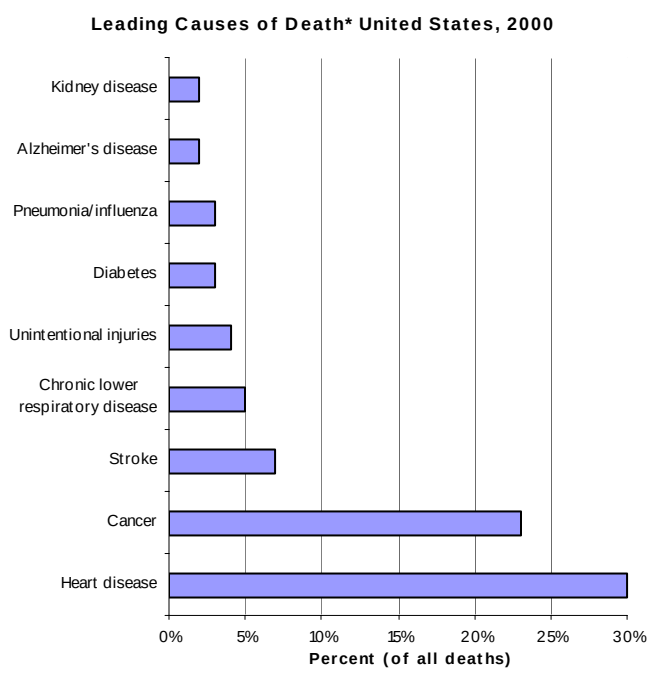
The World Health Organization (WHO): http://www.who.int/csr/disease/avian_influenza/en/

National Public Health Week,
April 5-11, 2004
Go to http://www.apha.org/nphw/ for information on activities during the week.

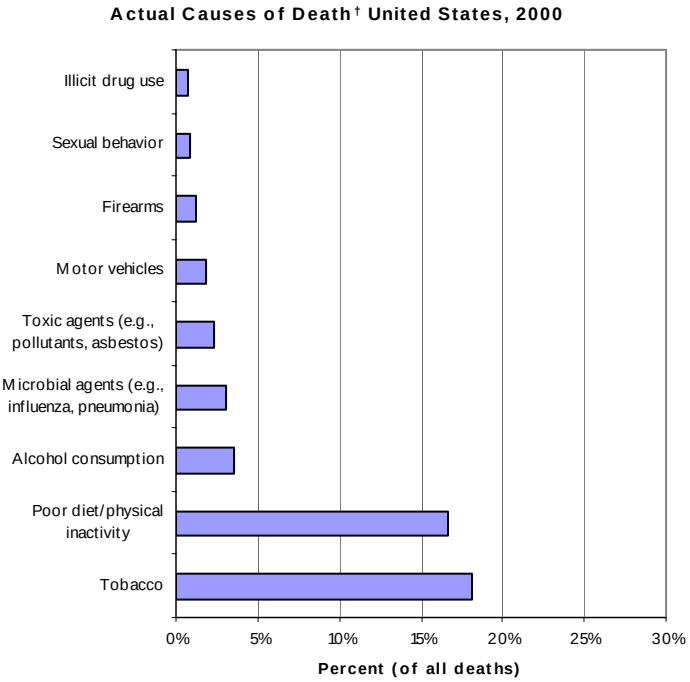
10 Most Common Actual Causes of Death in the United States, 2000*

In 2000, the most common ***actual*** causes of death in the United States were tobacco (435,000), poor diet and physical inactivity (400,000), alcohol consumption (85,000), microbial agents (e.g., influenza and pneumonia, 75,000), toxic agents (e.g., pollutants and asbestos, 55,000), motor vehicle accidents (43,000), firearms (29,000), sexual behavior (20,000) and illicit use of drugs (17,000).

Actual causes of death are defined as lifestyle and behavioral such as smoking and physical inactivity that contribute to this nation's leading killers including heart disease, cancer and stroke.



*Minino AM, Arias E, Kochanek KD, Murphy SL, Smith BL. Deaths: final data for 2000. National Vital Statistics Reports 2002; 50(15):1-120.



†Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. JAMA. 2004;291(10):1238-1246.

CDC has initiated a number of activities and programs intended to address the behavior and lifestyle factors that contribute to the actual causes deaths such as smoking, poor nutrition and physical inactivity. For more information on these activities visit: http://www.cdc.gov/nccdphp/factsheets/death_causes2000.htm.

To obtain Actual Causes of Death in the United States, 2000, visit JAMA's website at http://www.jama.ama-assn.org/.

**Excerpt from http://www.cdc.gov/nccdphp/factsheets/death_causes2000.htm.*

2003-2004, Influenza Update, Maricopa County

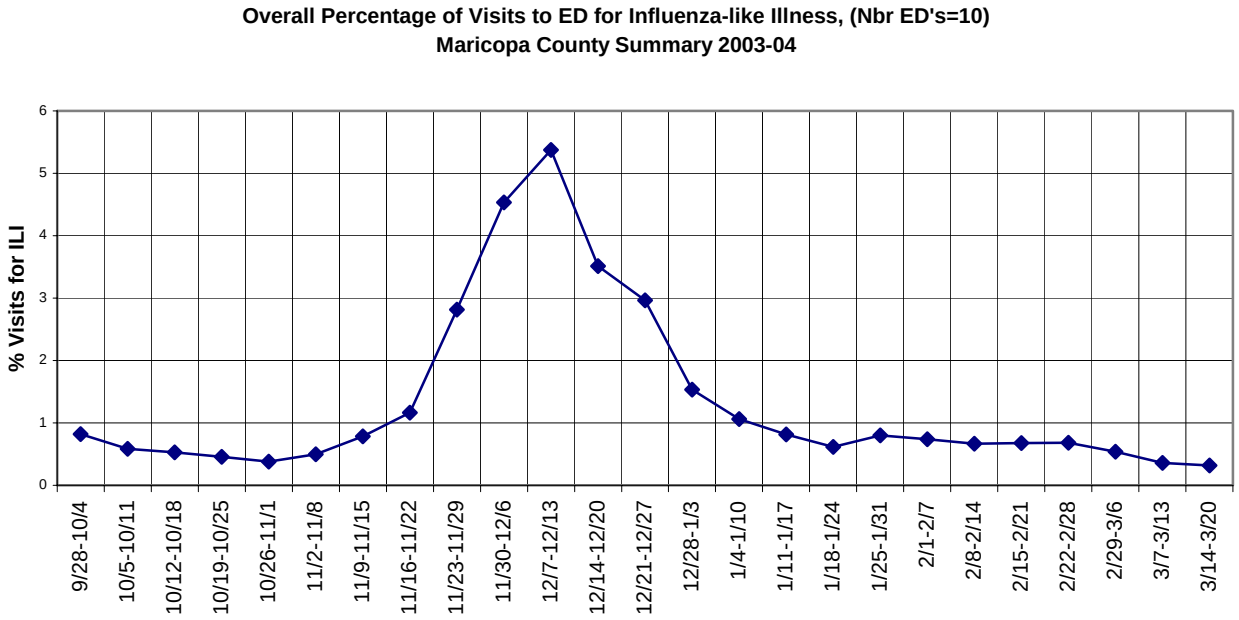
Contributed by Andrew Edmonds

As reported in the last Quarterly Epidemiologic Report, the Maricopa County Department of Public Health (MCDPH) Division of Epidemiology/BDPR conducts annual influenza surveillance. There are 52 sites providing weekly updates to the MCDPH. The following is a portion of the most recent influenza report. For the full report, visit: http://www.maricopa.gov/public_health/epi/flu.asp

Synopsis: During week 11 (March 14 – March 20, 2004), 1 laboratory-tested specimen was positive for influenza. The proportion of patient visits to Cigna Health Care Centers for influenza-like-illness (ILI) was 0.17%, while the proportion of patient visits to ASU Student Health and Wellness Center for ILI was 0.29%. The overall percentage of ED visits for ILI was 0.32%. Data for schools was unavailable during this week due to spring break. Long-term care center surveillance indicated insignificant influenza activity. Due to differences in case definitions as well as wide variability between national and local-level data, it is not appropriate to apply any national baselines or thresholds to the information represented in this report.

Laboratory Surveillance: During week 11, a total of 1 specimen tested positive for influenza. One untyped influenza virus was identified at Same Day Care Center (Sun City West).

Respiratory Syncytial Virus (RSV): RSV season traditionally lasts 20-25 weeks. Maricopa County expects to see RSV for another 6-12 weeks. In Maricopa County, 429 cases were reported in February 2004; however, RSV is not a reportable disease so this number is an underestimate of the actual number of RSV cases. RSV is the most common cause of bronchiolitis and pneumonia among infants and children under 1 year of age. Initial symptoms include fever, runny nose, cough and sometimes wheezing. RSV is spread from respiratory secretions through close contact with infected persons or contact with contaminated surfaces.



Save the Date – Upcoming Conferences/Meetings

Save the Date

What: 4th Annual Joint Vector-Borne and Zoonotic Diseases and Bioterrorism and Public Health Threats Conference

When: April 13-15, 2004

Where: Mesa Public Safety Training Facility Mesa, Az

Cost: There is no charge to attend

To Register: http://www.hs.state.az.us/phs/edc/edrp/es/conf.htmor email marint@hs.state.az.us or call: 602-364-3572

Sponsors: The Arizona Department of Health Services, the Federal Bureau of Investigation, City of Mesa Fire Department and Arizona Department of Emergency Management.

2004 National Sexual Violence Prevention Conference
Theme: Building Leadership and Commitment to End Sexual Violence

May 25-28, 2004
Los Angeles, CA

For more information call the California Coalition Against Sexual Assault (CALCASA) at (916) 446-2520 (ext 315) or 1-888-9CALCASA (ext 315) or email: dvpinfo@cdc.gov

The MCDPH Domestic Violence Workgroup is seeking walkers (or runners) to join them in the 2nd Annual Walk to End Domestic Violence. This is a fitness/fun 5K walk or competitive 5K run. The event is April 24th and starts around the Phoenix capitol area. Deadline to register with the public health team is April 16th. Contact Jerry Boone at 602-506-6036 for more information.

Visit the MCDPH Division of Epidemiology website at:
http://www.maricopa.gov/public_health/epi/

Bovine Spongiform Encephalopathy (BSE) in a Dairy Cow, Washington State, 2003

The first case of Bovine Spongiform Encephalopathy (BSE), a progressive, fatal neurologic disorder of cattle that is caused by abnormally folded proteins called prions was confirmed in a single "downer" dairy cow in the United States in December 2003. This is a synopsis of the investigation and the public health measures adopted by the USDA to protect the human food supply. Due to epidemiologic and laboratory evidence suggesting that the BSE agent has been transmitted to humans through the consumption of BSE-contaminated cattle products, causing new variant Creutzfeldt-Jakob disease (nvCJD), physicians in the US must be more aware of clinical symptoms of nvCJD (see table on page 7).

Investigation summary:

- On December 9, 2003, the 6.5 year old BSE-positive cow was slaughtered. The cow was nonambulatory at the time of slaughter, however this was attributed to complications from calving. The cow was examined by a USDA Food Safety and Inspection Service (FSIS) veterinary medical officer before and after slaughter. After examination, the carcass was released for human consumption, but the tissues (brain, spinal cord, and small intestine) considered to be at high risk for transmission of BSE agent were removed from the cow during slaughter.

- As part of the targeted BSE surveillance, brain tissues samples were taken by USDA's Animal and Plant Health Inspection Service (APHIS) since the cow was nonambulatory. On December 23, 2003, a presumptive positive diagnosis of BSE was made and the herd of the slaughtered cow was placed under state hold. Investigations were initiated at this point.

- On December 24, 2003, the FSIS recalled beef from cattle slaughtered at the same plant on the same day as the BSE+ cow. The beef was primarily in Oregon and Washington with smaller amounts in California, Idaho, Montana and Nevada. US FDA and inspectors from Oregon and Washington located all known potentially infectious products from the BSE+ cow.

- APHIS traced the birth of the cow to a farm in Alberta, Canada. On January 6, 2004, DNA evidence confirmed the traceback. This cow was one of 82 from a Canadian herd shipped to the US on September 4, 2001. Others are being traced to determine their disposition or current location. The BSE+ cow gave birth to two calves while in the US

- On December 30, 2003, the USDA announced additional safeguards to further minimize the risk of human exposure to BSE in the US. FSIS has prohibited the use of downer cattle for food for human consumption. They also require the removal of "high risk materials" from animals 30 months or older at the time of slaughter and withholding the USDA "inspected and passed" mark until negative BSE test results are received for any animal tested.

Note: BSE surveillance was initiated in the US in 1990. The USDA's Animal and Plant Health Inspection Service (APHIS) has tested brain tissue from approximately 57,000 cattle.

For a more detailed case chronology of the US BSE+ case visit:
http://www.usda.gov/news/releases/2003/12/bsechronology.htm

Epidemiologic and laboratory evidence suggest that the BSE agent has been transmitted to humans via consumption of BSE-contaminated cattle products, causing the new variant form of Creutzfeldt-Jakob disease (nvCJD). It is important to keep in mind that the risk for acquiring nvCJD in this manner is low due to a "species barrier" that provides substantial, but incomplete protection against development of nvCJD. Additionally, there are notable differences between BSE and nvCJD. New vCJD occurs in humans while BSE occurs in cattle. The onset of illness in the first case of nvCJD occurred in 1995, almost a decade after BSE was first recognized in cattle in the United Kingdom (UK) in 1986. As of January 7, 2004, a total of 155 probable and confirmed cases of nvCJD have been reported worldwide: 145 in the UK, 6 in France, and one each from Canada, Ireland, Italy and the United States. Almost all of the 155 nvCJD patients had multiple-year exposures in the UK between 1980 and 1996 during a large BSE outbreak in the UK. Since the BSE epidemic began in the UK in 1986, BSE cases have been identified in 20 European countries, Japan, Israel, and Canada.

It is also critical to be aware of the clinical and epidemiologic differences that exist between nvCJD and the more commonly occurring classic form of CJD that has been in the US for decades before the emergence of BSE. For example, the median age at death of patients with the classic form of CJD is 68 years while that of patients with nvCJD is 28 years. Additionally, the median illness duration of classic CJD patients is 4-5 months compared with 13-14 months for nvCJD patients. Patients with nvCJD often exhibit prominent behavioral and psychiatric symptoms, have painful sensory symptoms, and delayed neurologic signs. A pattern of periodic sharp waves on electroencephalograph is common in classic CJD patients, yet is absent in patients with nvCJD. Additional differences between nvCJD and classic CJD can be found at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5253a2.htm.

Since 1998, the MCDPH Division of Epidemiology has conducted surveillance of CJD through the monitoring of death certificate data reported to the county. The MCDPH reviews all CJD deaths in persons less than 55 years of age. The medical records of these CJD cases are requested, reviewed for completeness, and are then forwarded to the Arizona Department of Health Services who then forwards them on to CDC for their assessment. At present, there are no known cases of nvCJD acquired in the US; the case listed above represents the only probable nvCJD in a US resident although it is believed to have been acquired in the UK.

The CDC collaborates very closely with the National Prion Disease Pathology Surveillance Center (NPDPSC) at Case Western University. The purpose of this center is to monitor the occurrence of nvCJD and other emerging human prion diseases in the US through systematic review of pathologic data and brain tissues of suspected cases of human prion diseases. The center collects pathology reports of autopsy or biopsy-confirmed cases of sporadic, familial, and iatrogenic CJD, as well as other prion diseases, such as Gerstmann-Straussler-Scheinker syndrome and Fatal Familial Insomnia (FFI). These cases will then be reported to CDC to augment its national CJD surveillance, which is based largely on the analysis of multiple causes of death data derived from routinely submitted death certificates.

Information on the National Prion Disease Pathology Surveillance Center (NPDPSC), which provides advanced neuropathologic and biochemical diagnostic services free of charge to US physicians and state and local health departments, can be found at: http://www.cjdsurveillance.com or CDC at (404) 639-3091.

Note: Human prion diseases are defined as diseases of human and animals that affect primarily the nervous system. They can be sporadic, transmitted by infection or familial.

In the news

Medscape from WebMD APHA has collaborated with Medscape to create the new Public Health and Prevention Web site. Take a look at all the information it has to offer by going to: http://www.medscape.com/publichealthhome.

Ten Great Public Health Achievements -- United States, 1900-1999*

During the 20th century, the health and life expectancy of persons residing in the United States improved dramatically. Since 1900, the average lifespan of persons in the United States has lengthened by greater than 30 years; 25 years of this gain are attributable to advances in public health (1).

Many notable public health achievements have occurred during the 1900s, and other accomplishments could have been selected for the list. The choices for topics for this list were based on the opportunity for prevention and the impact on death, illness, and disability in the United States and are not ranked by order of importance.

Ten Great Public Health Achievements -- United States, 1900-1999

Vaccination	Motor vehicle safety
Safer workplaces	Control of infectious diseases
Decline in deaths from coronary heart disease and stroke	Safer and healthier foods
Healthier mothers and babies	Family planning
Fluoridation of drinking water	Recognition of tobacco use as a health hazard

The list of achievements was developed to highlight the contributions of public health and to describe the impact of these contributions on the health and well being of persons in the United States.

**Excerpt from http://www.cdc.gov/mmwr/preview/mmwrhtml/00056796.htm*

MCDPH Division of Epidemiology/BDPR
Contact Numbers (all 602 area code)

Anis Ahmed	Epidemiologist	372-2615
Vjollca Berisha	Senior Epidemiologist	372-2611
John Carlson	Epidemiologist	372-2641
Kristin Cass	Executive Assistant	372-2604
Marcos Coria	MCH Data Analyst	372-2632
Alisa Diggs-Gooding	Epidemiologist	372-2612
Andrew Edmonds	Surveillance Data Analyst	372-2619
Abrium Escárzaga	BT Epidemiologist	372-2643
Natalie Fuller	Surveillance Data Analyst	372-2613
Jeanette Gibbon	Epidemiologist	372-2642
Anita Gulati	Epidemiologist	372-2614
Ron Klein	Disease Surveillance Sup	506-6722
Chris Mahon	Program Admin, CHN	506-6771
Karen Moffitt	Senior Epidemiologist	372-2636
Liva Nohre	Senior Epidemiologist	372-2631
Lawrence Sands	Medical Director, Surveillance	372-8402
Sarah Santana	Director, Epidemiology	372-2601
Mare Schumacher	Deputy Director, Epi	372-2602
Jennifer Stewart	Epidemiologist	372-2617
Heather Wanatowicz	Administrative Supervisor	372-2669
Gary West	Statistical Programmer	372-2603

To report communicable diseases, unusual health occurrences, and public health emergencies (all 602 area codes unless otherwise noted)

	Business hours M-F 8a-5p	**After 5p**
Bite reports	506-7387	506-7387
Communicable diseases	506-6767	747-7111
Death/birth certificates, funeral homes, human remains	506-6805	450-9982 or 229-9315
HIV (reports)	506-6426 or 506-6871	Next business day
Public health emergencies	747-7111	747-7111
Rabies exposure	779-1358	747-7111
STDs (other than HIV)	506-1678	Next business day
TB	506-5065 or 372-1408	747-7111

For change of name or address or to be removed or added to this mailing list, please e-mail Jeanette Gibbon at: jeanettegibbon@mail.maricopa.gov or call (602) 372-2642.